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PAUL, DISLER	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/684,222	DEVANTIER ET AL.	
	Examiner	Art Unit	
	DISLER PAUL	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 September 2008*.

2a)☐ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-35; 37-104; 107-120;* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-35;37-104; 107-120* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 27-33; 37-38; 62-80; 119-120 are rejected under 35 U.S.C. 101 because a statutory "process" claim must be tied to another statutory (such as a particular Machine apparatus). While, the instant claim recites a series of steps or acts to be performed, the claim does not positively ties to another statutory category that accomplishes the claimed method steps, and therefore does not qualify as a statutory process. For example the method including steps of *recording and determining and analyzing are* of sufficient breadth that it would be reasonably interpreted as a series of steps completely performed mentally, verbally or without a machine.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 32 recites the limitation "the loudspeaker" in therein. There is insufficient antecedent basis for this limitation in the claim.

For prior art rejection, Claim 32 will be read as “a loudspeaker”.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-5; 8-9; 15-19; 24-25; 27-30, 32-33; 37-38; 42-44; 46 ; 48; 50; 52-53; 60 ; 62-64; 66; 68; 70-72; 75; 77-78; 81-84; 86; 88, 90; 94; 96; 98-99,101-102; 107-109; 111-116 are rejected under 35 U.S.C. 102(e) as being anticipated over Rabinowitz et al. ("2003/0179891").

Re claim 1, Rabinowitz et al. disclose an audio system comprising a configuration, the configuration selected based on a method comprising: generating acoustic signals from at least one loudspeaker placed at potential loudspeaker locations and recording transfer functions at a plurality of listening positions (fig.1,5 (14,16); fig.3 (20); par [0010,0021; 0027]/microphone and speakers in various locations for generating and pick up such generated sound from such various listening locations); determining potential configurations of the audio system and modifying the transfer functions based on the potential configurations in order to generate predicted transfer function at each of the plurality of listening positions(fig.4(48-59);

par [0021-0023,0027]/desired equalized frequency with sweet spot for specific location as per user as desired), statistically analyzing across at least one frequency of the predicted transfer functions for the plurality of listening positions and selecting a configuration based on the statistical analysis (fig.1 (18); fig.4-5; par [0022, 0027,0028,0025,0031]/equalization pattern with (filters and coefficients) stored and obtained from plurality of frequency responses in all positions appropriate correction factor denote (statistics- can be broadly interpreted as **the collection of data**) for obtaining the desired response including sweet spots as per listener location).

Re claim 2, The audio system of claim 1, where the configuration comprises at least one parameter that affects acoustical performance of the audio system; where determining potential configurations comprises determining potential values for the parameter and where modifying the transfer functions comprises modifying the transfer functions based on the potential values for the parameter; and where selecting a configuration comprises selecting a value for the parameter (fig.4 (58-59); par [0027,0031]/filter coefficient and equalizing for desired frequency response).

Re claim 3, the audio system of claim 2, where determining potential values for the parameter comprises inputting potential values for the parameter (fig.1, 3-4; *page 4[0030] line 8-13; page 5[0033]/input values may be determined with response as measured*).

Re claim 4, the audio system of claim 2, where the configuration comprises at least two parameters that affect acoustical performance of the audio system; and where determining potential configurations of the audio system comprise determining potential combinations of potential values of the parameters (fig.3-4; par [0025; 0027]/plurality of parameters affect acoustic with plurality of filer coefficients).

Re claim 5, the audio system of claim 2, where the parameter is selected from the group consisting of positions of the loudspeakers, number of loudspeakers, types of loudspeakers, and correction factors (fig.3; par[0031]/acoustical correction factor).

Re claim 8, the audio system of claim 1, where recording transfer functions at a plurality of listening positions comprises placing a microphone at each of the listening positions and recording the transfer functions (fig.3; par [0026,0036]/microphones for listening positions).

Re claim 9, the audio system of claim 1, where the statistical analysis is across a plurality of frequencies of the predicted transfer functions (par [0010, 0028]/equalization with low and high frequency patterns and different frequency response).

RE claim 15, Rabinowitz et al. disclose of a machine readable medium having software for causing a machine to execute a method, the machine readable medium comprising: instructions for generating acoustic signals from at least

one loudspeaker placed at potential loudspeaker locations; instructions for recording transfer functions for the generated acoustic signals at a plurality of listening positions (fig.1,5 (14,16); par [0010,0021]); instructions for determining potential configurations of the audio system; instructions for modifying the transfer functions based on the potential configurations in order to generate predicted transfer functions at each of the plurality of listening positions; instructions for statistically analyzing across at least one frequency of the predicted transfer functions for the plurality of listening positions (fig.1-4; (par [0022, 0027,0028,0025,0031).

RE claim 16, the machine readable medium of claim 15, where the instructions for recording transfer functions comprise instructions for storing the transfer functions in a memory (fig.1,5 (20)).

Re claims 17-18 have been analyzed and rejected with respect to claims 3-4.
Re claims 19 has been analyzed and rejected with respect to claim 9.

Re claim 24, the machine readable medium of claim 15, further comprising instructions for recommending a plurality of potential configurations (fig.3; par [0029]).

Re claim 25, Rabinowitz et al. disclose of a computer system for analyzing potential configurations in an audio system, the computer system comprising: a memory storing transfer functions recorded at a plurality of listening positions in the audio system (fig.5 (20); par

[0020]), and a processor in communication with the memory the processor determining potential configurations of the audio system, modifying the transfer functions based on the potential configurations in order to generate predicted transfer functions at each of the plurality of listening positions, statistically analyzing across at least one frequency of the predicted transfer functions, and recommending at least one of the potential configurations based on the statistical analysis (fig.1,5 (26,19); par [0029] and par [0022, 0027,0028,0025,0031] and see claim 1 analysis).

Re claim 27, Rabinowitz et al. disclose of a method for selecting a configuration for an audio system, the method comprising: recording transfer functions at a plurality of listening positions in the audio system; determining potential configurations of the audio system; modifying the transfer functions based on the potential configurations in order to generate predicted transfer functions at least two of the plurality of listening positions; statistically analyzing the predicted transfer functions at the at least two of the plurality of listening positions; and selecting a configuration based on the statistical analysis configuration based on the statistical analysis (see claim 1 rejection analysis).

Re claims 28-29 have been analyzed and rejected with respect to claims 2, 5.
Re claims 30 has been analyzed and rejected with respect to claim 4.

Re claim 32, the method of claim 27, where a loudspeaker is a subwoofer (par [0022]).

Re claim 33, the method of claim 27, where the audio system comprises a plurality of loudspeakers (fig.1).

Re claim 37, the method of claim 28, where determining potential values for the parameter comprises selecting a discrete number of potential configurations (fig.3 (20); par [0027,0025]/digital filter and coefficients).

Re claim 38, the method of claim 28, where determining potential values for the parameter comprises selecting a range of potential values ([par [0025, 0027]/plurality of filter coefficients).

Re claim 42; the method of claim 27, where the configuration comprises number of loudspeakers and where potential configurations comprise potential numbers of loudspeakers (fig.1-4; par [0022-0023;0027]/plurality of speakers) and where modifying the transfer functions based on the potential configurations comprises determining potential combinations of loudspeakers at potential loudspeaker locations (fig.1; 4; par [0022]/speakers may be placed about in the room and combined), the potential combinations being equal to at least one of the potential number of loudspeakers (par [0024]/all may be combined and inherently denote being equal) and combining the transfer functions for each of the potential combinations to generate predicted

transfer functions for each of the potential combinations, and where selecting one of the potential numbers of speakers based on the statistical analysis comprises (par [0024]; fig.1-4).

RE claim 43, the method of claim 28, where the parameter comprises types of loudspeakers; where determining potential configurations comprises determining combinations of potential types of loudspeakers at potential loudspeaker locations (par [0027,0021]/different of different types); where recording transfer functions comprises recording transfer functions at the listening positions with each potential type of loudspeaker in each of the plurality of potential loudspeaker locations; and where modifying the transfer functions based on the potential configurations comprises combining the transfer functions for the listening positions for each of the combinations to generate predicted transfer functions (see claim 42 rejection analysis).

Re claim 44, the method of claim 43, where the types of loudspeakers comprises loudspeakers with different qualities (par [0021]/different speaker qualities).

Re claim 46, the method of claim 27, where the configuration comprises correction factors; where potential configurations comprise potential values for the correction factors; and where modifying the transfer functions based on the potential configurations comprises modifying the transfer functions

for potential values for the correction factors to generate predicted transfer functions for each of the potential values (fig.3; par [0027]).

Re claim 48, the method of claim 27, where the configuration comprises a plurality of parameters; where determining potential configurations comprises determining potential values for the plurality of parameters and determining potential combinations of the potential values of the parameters; where recording transfer functions comprises recording transfer functions at the listening positions with each type of potential loudspeaker in each of a plurality of potential loudspeaker locations; and where modifying the transfer functions based on the potential configurations comprises modifying the transfer functions based on the potential combinations to generate predicted transfer functions (see claim 43 rejection analysis; fig.1-3; with plurality of type of loudspeakers).

Re claim 50, the method of claim 27, where statistically analyzing the predicted transfer functions comprises analyzing the predicted transfer functions across the plurality of listening positions(par [0010, 0028]/plurality of listening positions).

Re claim 52, the method of claim 27, where statistically analyzing the predicted transfer functions comprises analyzing the predicted transfer functions for each of the plurality of listening positions (fig.3 (1-4); par [0027, 0031]).

Re claim 53, the method of claim 27, where the statistical analysis indicates consistency of the predicted transfer functions across the plurality of listening positions (par [0031]/desired equalization pattern/consistency).

Re claim 60, the method of claim 27, where the statistical analysis indicates differences in overall sound pressure level among the plurality of listening positions for the predicted transfer functions (par [0027,0031]/comparison/difference as with each listening positions).

RE claim 62, Rabinowitz disclose of the Method for selecting a configuration for an audio system, the method comprising-recording transfer functions at least one listening positions in the audio system; determining potential configurations of the audio system; modifying the transfer functions based on the potential configurations in order to generate predicted transfer functions; statistically analyzing the predicted transfer functions; and selecting a selecting a configuration based on the statistical analysis, where recording the transfer functions comprises recording the transfer functions at a plurality of listening positions (see claims 1, 15 rejection analysis); and where the statistical analysis indicates efficiency of the predicted transfer functions at the plurality of listening positions (par [0022, 0027,0028,0025,0031]/efficiency with desired result).

Re claim 63, the method of claim 62, where efficiency is examined for predetermined frequencies (par [0010, 0012]/with predetermined frequency response).

RE claim 64, the method of claim 63, where selecting a configuration based on the statistical analysis comprises selecting a value for a parameter to increase efficiency of the audio system in the predetermined frequencies ((par [0010, 0012]/with predetermined frequency response improved/increase the sound).

Re claim 66, the method of claim 27, where the statistical analysis comprises acoustic efficiency (par [0022, 0027,0028 ,0025 ,0031]/efficiency with desired result).

Re claim 68, the method of claim 66, where selecting a configuration based on the statistical analysis comprises selecting a value for a parameter to increase acoustic efficiency of the audio system (par [0025,0031]).

Re claim 70, the method of claim 27, where the statistical analysis indicates output of predicted transfer functions at the multiple listening positions (par [0031, 0036,0038]/desired frequency response for listening positions).

Re claim 71, the method of claim 70, where output is examined for predetermined frequencies (par [0010, 0012]/with predetermined frequency response).

Re claim 72, the method of claim 71, where selecting a configuration based on the statistical analysis comprises selecting a value for a parameter to increase output of the audio system in the predetermined frequencies (par [0031, 0036,0038]/desired frequency response for output).

Re claim 75, the method of claim 27, where selecting a configuration comprises selecting one of the potential values of the parameter ([par [0025, 0027]/plurality of filter coefficients with stored).

Re claim 77, the method of claim 27, where selecting a configuration comprises automatically selecting a configuration (par [0027]/modes configured with having desired response).

Re claim 78, the method of claim 77; where a plurality of statistical analyses are performed; and where selecting a configuration is based on weighting the plurality of statistical analyses (fig.4/modified and as in weighting).

Re claim 81, Rabinowitz disclosed of the machine readable medium having software for causing a machine to execute a method, the machine readable medium comprising instructions for storing transfer functions recorded at a plurality of listening positions in an audio system; instructions for determining potential configurations for the audio system; instructions for modifying the transfer functions based on the potential configurations in order to generate predicted transfer functions at least two of the plurality of listening positions; and instructions for statistically analyzing the predicted transfer functions at the at least two of the plurality of listening positions (see claim 1 rejection analysis and further fig.3; par [0004-0005, 0027]/sweet spot for specific location).

Re claim 82, the machine readable medium of claim 81, where the instructions for determining potential configurations comprise instructions for receiving input for potential values of parameters for the audio system (see claim 17 rejection).

Re claim 83; the machine readable medium of claim 81, where the potential configurations comprise a plurality of potential loudspeaker locations; where the transfer functions are recorded with the loudspeaker in each of the plurality of potential loudspeaker locations; where the instructions for determining potential configurations for the audio system comprise instructions for determining potential combinations of the potential loudspeaker

locations; and where the instructions for modifying the transfer functions based on the potential configurations comprise instructions for combining the transfer functions for the listening positions for each of the potential combinations of loudspeaker locations to generate predicted transfer functions (fig.1-4).

Re claim 84, the machine readable medium of claim 81, where the potential configurations comprise potential values for the correction factors; where the instructions for modifying the transfer functions based on the potential configurations comprise instructions for modifying the transfer functions for potential values for the correction factors to generate predicted transfer functions for each of the potential values (fig.4).

Re claim 86; the machine readable medium of claim 81, where the configuration comprises a plurality of parameters; where the instructions for determining potential configurations comprise instructions for inputting potential values for the plurality of parameters and instructions for determining potential combinations of the potential values of the parameters; where the instructions for recording transfer functions comprise instructions for recording transfer functions at each of the plurality of listening positions with each type of potential loudspeaker in each of a plurality of potential loudspeaker locations; and where the instructions for modifying the transfer functions based on the potential configurations

comprise instructions for modifying the transfer functions based on the potential combinations to generate predicted transfer functions for the potential combinations (fig.1-4).

Re claim 88, the machine readable medium of claim 81, where the instructions for statistically analyzing the predicted transfer functions comprise instructions for analyzing the predicted transfer functions across the plurality of listening positions (fig.1-3; par [0004-0005; 0027]/with sweet spot for specific listener location positions).

Re claim 90, the machine readable medium of claim 81, where the instructions for statistically analyzing the predicted transfer functions comprise instructions for analyzing the predicted transfer functions for each of the plurality of listening positions (fig.3; par [0027]/with sweet spot for specific listener location positions).

Re claim 94, the machine readable medium of claim 81, where the statistical analysis indicates how much equalization is necessary for the predicted transfer functions (fig.1;3).

Re claim 96, the machine readable medium of claim 81, where the statistical analysis indicates differences in overall sound pressure level among the plurality of listening positions for the predicted transfer functions (par [0010]).

Re claim 98, the machine readable medium of claim 81, where the statistical analysis indicates efficiency of the predicted transfer functions at the plurality of listening positions (fig.3; par [0027]).

Re claim 99, the machine readable medium of claim 81, where the statistical analysis comprises acoustic efficiency (see claim 66 rejection).

Re claim 101, the machine readable medium of claim 81, further comprising instructions for recommending at least one of the potential configurations (fig.4).

Re claim 102, the machine readable medium of claim 101, where a plurality of statistical analyses are performed; and where the instructions for recommending at least one of the potential configurations is based on weighting the plurality of statistical analyses (par [0031]).

Re claim 107, Rabinowitz disclosed of an audio system comprising at least one loudspeaker and a plurality of listening positions, a system for analyzing potential configurations comprising means for storing transfer functions recorded at a plurality of listening positions (fig.1; 5 (20); par [0004]); means for determining potential configurations for the audio system and means for modifying the

transfer functions based on the potential configurations in order to generate predicted transfer functions at least two of the plurality of listening positions (fig.3); and means for statistically analyzing the predicted transfer functions at the at least two of the plurality of listening positions (fig.1, (18); fig.3; par [0027]).

Re claim 108-109 have been analyzed and rejected with respect to claim 5, 52

Re claim 111 has been analyzed and rejected with respect to claim 107

RE claim 112, the system of claim 111, where the processor means further recommends at least one of the potential configurations based on the statistical analysis (fig.1 (18); fig.3).

Re claim 113, the system of claim 111, where the statistical analysis is across at least one frequency of the predicted transfer functions (fig.3 (20)/equalizing with frequency).

Re claims 114-116 have been analyzed and rejected with respect to claims 111-113.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 11-13; 21-23; 26 ; 54-56; 58-59; 61; 74; 92-93; 100; 110 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rabinowitz et al. ("2003/0179891") and Tagami et al. (US 5,745,586).

Re claim 11, the audio system of claim 1, Rabinowitz et al. teach of the predicted listening transfer functions based on statistical analysis for spatial effect (fig.3/acoustical effect of listening position), However, Rabinowitz et al. fail to disclose of the specific wherein the statistical analysis is selected from the group consisting of mean variance, mean standard deviation, mean envelope, and mean maximum average. However, Tagami et al. disclosed of a statistical system wherein the statistical analysis is selected from the group consisting of mean variance and standard deviation (fig.4; col.7 line 34-41; col.8 line 1-16; col.13 line 30 -col.14 line 60 and col.15 line 64-col.16 line 53/from the plurality of input sound, statistical analysis is made which consist of mean variance and standard devication). Thus, it would have been obvious to have modified the Rabinowitz et al. with the statistical system wherein selected from

the group consisting of mean variance and standard deviation for determining the desired sound quality for optimal performance.

While, the combined teaching fail to disclose of the standard deviation being of mean standard deviation. However, it is noted having mean standard deviation is merely an obvious variation of the designer's preference based on his need. Thus, it would have been obvious for one to have modified the combination with having such mean standard deviation since it is one of the many well known alternatives for obtaining desired/optimal sound quality.

Similarly Re claim 12; 26; 110 have been analyzed and rejected with respect to claim 11.

Re claims 21-23 have been analyzed and rejected with respect to claim 11-13.

Re claim 54, Rabinowitz disclose of a method for selecting a configuration for an audio system, the method comprising: recording transfer functions at least one listening positions in the audio system; determining potential configurations of the audio system; modifying the transfer functions based on the potential configurations in order to generate predicted transfer functions; statistically analyzing the predicted transfer functions; and selecting an acoustic correction factor_ configuration based on the statistical analysis, where recording the transfer functions comprises recording the transfer functions at a plurality of listening positions with

the spatial acoustical effect (fig.1-5; and also see claim 1 rejection analysis).

However, Rabinowitz et al. fail to disclose of the specific wherein the statistical analysis is selected from the group consisting of mean variance, mean standard deviation, mean envelope, and mean maximum average.

However, Tagami et al. disclose of a statistical system wherein selected from the group consisting of mean variance and standard deviation (col.13 line 30 -col.14 line 60 and col.15 line 64-col.16 line 53). Thus, it would have been obvious for one of the ordinary skills in the art to have modified the combination with the statistical system wherein selected from the group consisting of mean variance and standard deviation for determining the desired sound quality for optimal performance.

While, the combined teaching fail to disclose of the standard deviation being of mean standard deviation. However, it is noted having mean standard deviation is merely an obvious variation of the designer's preference based on his need. Thus, it would have been obvious for one to have modified the combination with having such mean standard deviation since it is one of the many well known alternatives for obtaining desired/optimal sound quality.

Re claim 92-93 have been analyzed and rejected with respect to claim 54.

Similarly Re claim 55 have been analyzed and rejected with respect to claims 12.

Re claim 13, the audio system of claim 12, where the mean spatial variance is based on of a spatial variance across the listening positions for a plurality of frequencies (see claim 11 rejection).

But, the combined teaching of Rabinowitz and Tagami et al. as a whole, fail to disclose of the specific average variance. But, it is noted the concept of having such specific with average variance is merely an obvious variation of the designers' choice based on his need. Thus, it would have been obvious for one of the ordinary skill in the art to have modified the above, with having average variance since it is just one of the many well known alternatives to determining such desired analysis parameters.

Similarly Re claim 56 has been analyzed and rejected with respect to claim 13.

Re claim 58; the method of claim 27, where the statistical analysis, but, Rabinowitz fail to disclose of the specific selected from the group consisting of variance of spatial average, standard deviation of

the spatial average, envelope of the spatial average, and variance of the spatial minimum.

However, Tagami et al. disclose of a statistical system wherein selected from the group consisting of variance and standard deviation (col.15 line 64-col.16 line 53). Thus, it would have been obvious for one of the ordinary skill in the art to have modified the combination with the statistical system wherein selected from the group consisting of variance, standard deviation for similarly determining the predicted parameters for optimal performance.

But, the combine teaching of Rabinowitz and Tagami et al. as a whole, fail to disclose of the specific mean variance of average, standard deviation of the average. But, it is noted the concept of having such specific with variance of average, standard deviation of the average merely an obvious variation of the designers' choice based on his need. Thus, it would have been obvious for one of the ordinary skill in the art to have modified the above, with having the variance of average, standard deviation of the average since it is just one of the many well known alternatives to determining such desired sound signals.

Re claim 59, has been analyzed and rejected with respect to claim 58.

RE claim 61, the method of claim 27, where the statistical analysis is selected from the group consisting of variance of level; standard deviation of levels (see claim 11 rejection analysis).

But, the combine teaching of Rabinowitz and Tagami et al. as a whole, fail to disclose of the specific mean level of variance, or standard deviation being of mean level. But, it is noted the concept of having such specific with mean level of variance, standard deviation of the mean level is merely an obvious variation of the designers' choice based on his need. Thus, it would have been obvious for one of the ordinary skill in the art to have modified the above, with having mean level of variance , standard deviation of the of mean level since it is just one of the many well known alternatives to determining such desired sound signal.

Re claim 74, the audio system of claim 1, Rabinowitz et al. fail to teach of the statistical analysis comprise mean overall level. However, Tagami et al. disclose of the statistical analysis comprise mean level (col.13 line 30 -col.14 line 60 and col.15 line 64-col.16 line 53/mean with level sound). Thus, it would have been obvious for one of the ordinary skills in the art to have modified the combination with the statistical analysis comprise mean level for determining the desired sound quality for optimal performance.

While, the combined teaching fail to disclose of the standard deviation being of mean overall level. However, it is noted having mean overall level standard deviation is merely an obvious variation of the designer's preference based on his need. Thus, it would have been obvious for one to have modified the combination with having such mean overall level since it is one of the many well known alternatives for obtaining desired/optimal sound quality.

RE claim 100 has been analyzed and rejected with respect to claim 74 above.

Claims 6-7; 34-35; 39-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rabinowitz et al. ("2003/0179891") and Cohen et al. (US 2003/0031333 A1).

Re claim 6, the audio system of claim 2, where the parameter comprises positions of the loudspeakers (fig.1 (14); par [0004, 0006, 0022]/ speakers to be position about a room).

However, Rabinowitz et al. fail to disclose of the specific wherein determining potential configurations comprises: determining potential positions of the loudspeakers; and generating potential combinations of speakers based on the potential positions of the loudspeakers.

But, Cohen et al. disclose of a system wherein the similar concept of wherein determining potential configurations comprises: determining potential positions of the loudspeakers; and generating

potential combinations of speakers based on the potential positions of the loudspeakers (fig.1-5; 12; par [0011-0012; 0051-0052]/configuration based on determination of locations of speakers). Thus, it would have been obvious for one of the ordinary skill in the art to have modified the combinations with the wherein determining potential configurations comprises: determining potential positions of the loudspeakers; and generating potential combinations of speakers based on the potential positions of the loudspeakers for obtaining the optimal three dimensional audio for sweet spots.

The combined teaching of Rabinowitz et al. and Cohen et al. as a whole, would have further disclose of the modifying the transfer functions comprises superpositioning of the transfer functions based on the potential combinations of speakers (Rab; fig.4 (54); par [0031]).

Re claim 7, the audio system of claim 6, where the at least one parameter further comprises correction factors; and where the potential configurations are based on the potential combinations of speakers and the potential values for the correction factors (fig.3-4; par [0025; 0028]/speakers and equalization pattern value).

Re claim 34, the method of claim 27, But, Rabinowitz fail to disclose of the specific where the configuration comprises potential loudspeaker locations; where recording transfer functions comprises

generating acoustic signals from the loudspeaker placed at each of the potential loudspeaker locations.

But, Cohen et al. disclose of a system wherein the similar concept of wherein the configuration comprises potential loudspeaker locations; where recording transfer functions comprises generating acoustic signals from the loudspeaker placed at each of the potential loudspeaker locations (fig.1-5; 12; par [0011-0012; 0051-0052]/configuration based on determination of locations of speakers). Thus, it would have been obvious for one of the ordinary skill in the art to have modified the combinations with the wherein the configuration comprises potential loudspeaker locations; where recording transfer functions comprises generating acoustic signals from the loudspeaker placed at each of the potential loudspeaker locations for obtaining the optimal three dimensional audio for sweet spots.

The combined teaching of Rabinowitz and Cohen et al. as a whole, further disclose of recording the transfer functions for the plurality of listening positions for the generated acoustic signals (fig.3; par [0022; 0036]/speakers placed in room and record) and where selecting a configuration based on the statistical analysis comprises selecting less than all of the potential loudspeaker locations for placement of loudspeakers in the audio system (par [0024]/selective speakers for configurations).

Re claim 35, the method of claim 34, where generating acoustic signals from the loudspeaker placed at each of the potential loudspeaker locations comprises placing the loudspeaker at a first potential position and controlling the audio system to generate an acoustic signal; and where recording transfer functions at the plurality of listening positions comprises placing a microphone at a first listening position and recording the acoustic signal and placing the microphone at a second listening position and recording the acoustic signal (fig.3; par [0024,0031]).

Re claim 39, the method of claim 28, But, Rabinowitz fail to disclose of where the parameter comprises loudspeaker locations; where recording transfer functions comprises recording transfer functions at the listening positions with the loudspeaker in each of the plurality of potential loudspeaker locations.

But, Cohen et al. disclose of a system wherein the similar concept of where the parameter comprises loudspeaker locations; where recording transfer functions comprises recording transfer functions at the listening positions with the loudspeaker in each of the plurality of potential loudspeaker locations (fig.1-5; 12; par [0011-0012; 0051-0052]/configuration based on determination of locations of speakers). Thus, it would have been obvious for one of the ordinary skill in the art to have modified the combinations with the wherein where the parameter comprises loudspeaker locations; where recording transfer functions comprises recording transfer functions at the listening positions with the

loudspeaker in each of the plurality of potential loudspeaker locations for obtaining the optimal three dimensional audio for sweet spots.

The combination of Rabinowitz and Cohen et al. as a whole, would have disclose of where determining potential configurations comprises inputting a plurality of potential loudspeaker locations and determining potential combinations of the potential loudspeaker locations (Rab,fig.3-4; par [0025; 0028]/speakers and equalization pattern value and data to be combined) and where modifying the transfer functions comprises combining the transfer functions for the listening positions for each of the potential combinations of loudspeaker locations to generate the predicted transfer functions (fig.1-4; par [0025; 0028]).

Re claim 40, the method of claim 39, where the plurality of loudspeaker locations comprises a first potential loudspeaker location and a second potential loudspeaker location fig.1-5; 12; par [0011-0012; 0051-0052]/plurality of locations speakers) and where recording transfer functions comprises: recording the transfer function at plurality of listening positions and selective speakers and combined the transfer functions and statistically analyzing for desired response with coefficient and equalizer (fig.1-4; par [0024; 0027]).

But, the combined teaching of Rabinowitz and Cohen et al. as a whole, fail to disclose of the specific wherein recording a first transfer function at a first listening position with the loudspeaker at the first potential

loudspeaker location; recording a second transfer function at the first listening position with the loudspeaker at the second potential loudspeaker location and recording a third transfer function at a second listening position with the loudspeaker at the first potential loudspeaker location; and recording a fourth transfer function at the second listening position with the loudspeaker at the second potential loudspeaker location; where combining the transfer functions comprises: combining the first transfer function and the second transfer function; and combining the third transfer function and the fourth transfer function; where statistically analyzing the predicted transfer functions is based on the first transfer function, the second transfer function, the third transfer function, the fourth transfer function, the combined first and second transfer function and the combined third and fourth transfer function.

But, it is noted the concept of having such specific wherein recording a first transfer function at a first listening position with the loudspeaker at the first potential loudspeaker location; recording a second transfer function at the first listening position with the loudspeaker at the second potential loudspeaker location and recording a third transfer function at a second listening position with the loudspeaker at the first potential loudspeaker location; and recording a fourth transfer function at the second listening position with the loudspeaker at the second potential loudspeaker location; where combining the transfer functions comprises: combining the first transfer function and the second transfer function; and combining the third transfer function and the fourth transfer function; where statistically analyzing the predicted transfer functions is based on the first transfer function, the second transfer function, the third transfer function, the

fourth transfer function, the combined first and second transfer function and the combined third and fourth transfer function is merely an obvious variation of the designer's choice based on his need with no unexpected result. thus, it would have been obvious for one of the ordinary skill in the art to have modified the above with the recording a first transfer function at a first listening position with the loudspeaker at the first potential loudspeaker location; recording a second transfer function at the first listening position with the loudspeaker at the second potential loudspeaker location and recording a third transfer function at a second listening position with the loudspeaker at the first potential loudspeaker location; and recording a fourth transfer function at the second listening position with the loudspeaker at the second potential loudspeaker location; where combining the transfer functions comprises: combining the first transfer function and the second transfer function; and combining the third transfer function and the fourth transfer function; where statistically analyzing the predicted transfer functions is based on the first transfer function, the second transfer function, the third transfer function, the fourth transfer function, the combined first and second transfer function and the combined third and fourth transfer function for similarly obtaining the desired response at the sweet spot.

Re claim 41, the method of claim 40 (fig.4/with transfer function being added and combined), But, Rabinowitz fail to disclose of the specific wherein combining the first transfer function ant the second transfer function comprises performing superposition of the first transfer function with the second transfer function; and where combining the third transfer function and

the fourth transfer function comprises performing superposition of the third transfer function with the fourth transfer function.

But, it is noted the concept of specifically combining the first transfer function ant the second transfer function comprises performing superposition of the first transfer function with the second transfer function; and where combining the third transfer function and the fourth transfer function comprises performing superposition of the third transfer function with the fourth transfer function is merely an obvious variation of the designer's choice based on his need and preference. thus, it would have been obvious for one of the ordinary skill in the art to have modified the above with the combining the first transfer function ant the second transfer function comprises performing superposition of the first transfer function with the second transfer function; and where combining the third transfer function and the fourth transfer function comprises performing superposition of the third transfer function with the fourth transfer function for similarly obtaining the improved sound equalization signal.

Claims 10, 14; 20; 31; 45; 47; 49; 51; 57; 65; 67; 69; 73; 76; 79-80; 103-104; 85; 87; 89; 91; 95; 97; 117-120 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rabinowitz et al. ("2003/0179891")

Re claim 14, the audio system of claim 1, where selecting a configuration comprises automatically recommending a plurality of potential configurations and selecting one of the plurality of potential configurations (par [0025,0027]).

However, Rabinowitz et al. fail to disclose of the specific *manually* selecting one of the plurality of potential configuration. However, it is noted the concept of *manually* selecting one of the plurality of potential configuration is merely an obvious variation of the designer's choice based on his need with no unexpected result (manual or automatic configuration enable equivalent function operation). Thus, it would have been obvious for one of the ordinary skill in the art to have modified the combination with the *manually* selecting one of the plurality of potential configuration since it is one of the many well known alternative configurations to create an improved equalized sound system.

Re claim 76 has been analyzed and rejected with respect to claim 10.

Re claim 10, the audio system of claim 9, However, Rabinowitz fail to disclose of the specific wherein the plurality of frequencies being less than 120 Hz. However, it is noted having the frequencies being less than 120 Hz is merely an obvious variation of the designer's choice based on his need with no unexpected result. Thus, it would have been obvious for one of the ordinary skill in the art to have modified the above with by incorporating the specific wherein the frequency being less than 120 Hz for similarly creating the improve equalization sound.

Re claims 20; 49; 87 have been analyzed and rejected with respect to claim 10.

Re claim 31, the method of claim 30, where the transfer function measure amplitude at a single frequency or multiple frequencies (par [0009, 0030]). But, Rabinowitz fail to disclose of phase measuring of the transfer function. But, official notice is taken the concept of phase measuring of the transfer function is well known in the art. Thus, it would have been obvious for one of the ordinary skill in the art to have modified the above with phase measuring of the transfer function for obtaining the improved equalized sound.

Re claim 45, the method of claim 44 with the potential type of loudspeakers, but, Rabinowitz fail to disclose of the specific wherein the types of loudspeakers comprise a dipole and monopole loudspeakers. But, official notice is taken having types of loudspeakers comprise a dipole and monopole loudspeakers are well known in the art. Thus, it would have been obvious for one of the ordinary skill in the art to have modified the above with the types of loudspeakers comprise a dipole and monopole loudspeakers in generating improved equalize sound.

Re claim 47, the method of claim 46, where the correction factors comprise gain and equalization (fig.3). But, Rabinawitz fail to disclose of the delay. But, official notice is taken having correction factor with delay is well known in the art. Thus, it would have been obvious for one of the ordinary skill in the art to have modified the above with correction factor with delay for producing the improved equalized sound.

Re claim 51, the method of claim 50, where analyzing the predicted transfer functions across the plurality of listening positions, but, Rabinowitz fail to disclose of the specific wherein the transfer function is a function of frequency. But, official notice is taken having the transfer function is a function of frequency is well known in the art. Thus, it would have been obvious for one of the ordinary skills in the art to have modified the combination with the transfer function is a function of frequency for determining the improved sound patterns.

Re claim 89 has been analyzed and rejected with respect to claim 51.

Re claim 57, the method of claim 27, where the statistical analysis indicate the predicted transfer functions. But, Rabinowitz fail to disclose of the specific indicating flatness of the transfer function. But, official notice is taken indicating flatness of the transfer function is well known in the art. Thus, it would have been obvious for one of the ordinary skill in the art to have modified the combination with indicating flatness of the transfer function for similarly determining the improved sound patterns.

Re claim 91 has been analyzed and rejected with respect to claim 57.

RE claim 95, the machine readable medium of claim 81, but, Rabinowitz fail to disclose of the specific where the statistical analysis is selected from the group consisting of variance of spatial average, standard deviation of the spatial average, envelope of the spatial average, and variance of the spatial

minimum. But, it is noted the concept of having statistical analysis being selected from the group consisting of variance of spatial average, standard deviation of the spatial average, envelope of the spatial average, and variance of the spatial minimum is merely an obvious variation of the designer's preference based on his need. Thus, it would have been obvious for one of the ordinary skill in the art to have modified the above with the statistical analysis is selected from the group consisting of variance of spatial average, standard deviation of the spatial average, envelope of the spatial average, and variance of the spatial minimum for providing the improved equalization sound.

Similarly Re claim 97 has been analyzed and rejected with respect to claim 95.

Re claim 65, the method of claim 64, where the parameter comprise volume correction and selecting a value that increase efficiency (par [0029-0030]/with volume correction), But, rabinowitz fail to disclose of the specific wherein selecting a value to increase efficiency comprises selecting a value that decreases the volume of at least one of the loudspeakers in the audio system. But, official notice is taken the concept of selecting a value to increase efficiency comprises selecting a value that decreases the volume of at least one of the loudspeakers in the audio system is merely an obvious variation of the designer's choice based on his need with no unexpected result. thus, it would have been obvious for one of the ordinary skill in the art to have modified the above with selecting a value to increase efficiency

comprises selecting a value that decreases the volume of at least one of the loudspeakers in the audio system for similarly creating the improves equalized sound.

Re claim 67, the method of claim 66 with the acoustic efficiency, However, Rabinowiz fail to disclose of the further limitation of the acoustic efficiency comprises a mean overall level divided by a total drive level for the predicted transfer function. However, official Notice is taken that the concept of determining the acoustic efficiency by a mean overall level divided by a total drive level if commonly known in the art. Thus, it would have been obvious for one of the ordinary skill in the art to modify Rabinowitz by incorporating the acoustic efficiency comprises a mean overall level divided by a total drive level for the purpose of ascertaining the audio level signal.

Similarly Re claim 69; 73 have been analyzed and rejected with respect to claim 65.

RE claim 85, the machine readable medium of claim 84; where correction factors comprises gain and equalization (fig.3; par [9929; 0031]/gain and equalize). But, rabinowitz fail to disclose of the specific wherein correction factors comprise delay. But, official notice is taken the concept of having a correction factor comprise delay is well know in the art. Thus, it would have been obvious for one of the ordinary skill in the art to have modified the above with having the correction

factors comprise delay for similarly creating the improved equalized sound.

79. (Original) The method of claim 27, with the statistical analysis, But, Rabinowitz et al. fail to disclose of ranking and ranks the predicted transfer functions based on at least one metric, and where selecting a configuration comprises selecting a configuration based on the ranking. But, official notice is taken the concept of ranking and ranks the predicted transfer functions based on at least one metric, and where selecting a configuration comprises selecting a configuration based on the ranking is well known in the art. Thus, it would have been obvious for one of the ordinary skill in the art to have modified the above with having the ranking and ranks the predicted transfer functions based on at least one metric, and where selecting a configuration comprises selecting a configuration based on the ranking in generating improved/desired sound.

Re claim 80, the method of claim 79, where selecting a configuration based on the ranking, but, the modified Rabinowitz fail to disclosed of the selecting an optimal value based on a highest ranked predicted transfer function. But, it is noted the concept of selecting an optimal value based on a highest ranked predicted transfer function is merely an obvious variation of the desired choice based on his choice. . Thus, it would have been obvious for one of the ordinary skill in the art to have modified the above with selecting an optimal value

based on a highest ranked predicted transfer function in generating improved/desired sound.

Re claims 103 -104 has been analyzed and rejected with respect to claims 78-79.

Re claim 117, the audio system of claim 1, wherein statistically analyzing the predicted transfer functions at the plurality of listening positions comprises: analyzing for a configuration a first predicted transfer function at a first listening position and a second predicted transfer function at a second listening position for at least one criterion (fig.3-4/*at plurality of locations transfer functions and criteria may be determined and analyzed for plurality of locations and determined predicted configurations*).

However, Rabinowitz failed to disclose of the specific wherein analyzing for a second configuration a third predicted transfer function at the first listening position and a fourth predicted transfer function at the second listening position for the at least one criterion; and wherein selecting a configuration based on the statistical analysis comprises selecting one of the first configuration or second configuration based on the analysis of the criterion for the first configuration and second configuration. But, it is noted the concept of analyzing for a second configuration a third predicted transfer function at the first listening position and

a fourth predicted transfer function at the second listening position for the at least one criterion; and wherein selecting a configuration based on the statistical analysis comprises selecting one of the first configuration or second configuration based on the analysis of the criterion for the first configuration and second configuration is merely an obvious variation of the designer's choice based on his need with no unexpected result. thus, it would have been obvious for one of the ordinary skill in the art to have modified the above with the analyzing for a second configuration a third predicted transfer function at the first listening position and a fourth predicted transfer function at the second listening position for the at least one criterion; and wherein selecting a configuration based on the statistical analysis comprises selecting one of the first configuration or second configuration based on the analysis of the criterion for the first configuration and second configuration for determining the improved sound equalized signal.

Re claim 118, the audio system of claim 117, wherein the criterion comprises flatness of the predicted transfer functions (see claim 57 rejection analysis).

Re claim 119-120 have been analyzed and rejected with respect to claims 117-118.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DISLER PAUL whose telephone number is (571)270-1187. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/D. P./
Examiner, Art Unit 2614

/Vivian Chin/
Supervisory Patent Examiner, Art Unit 2614